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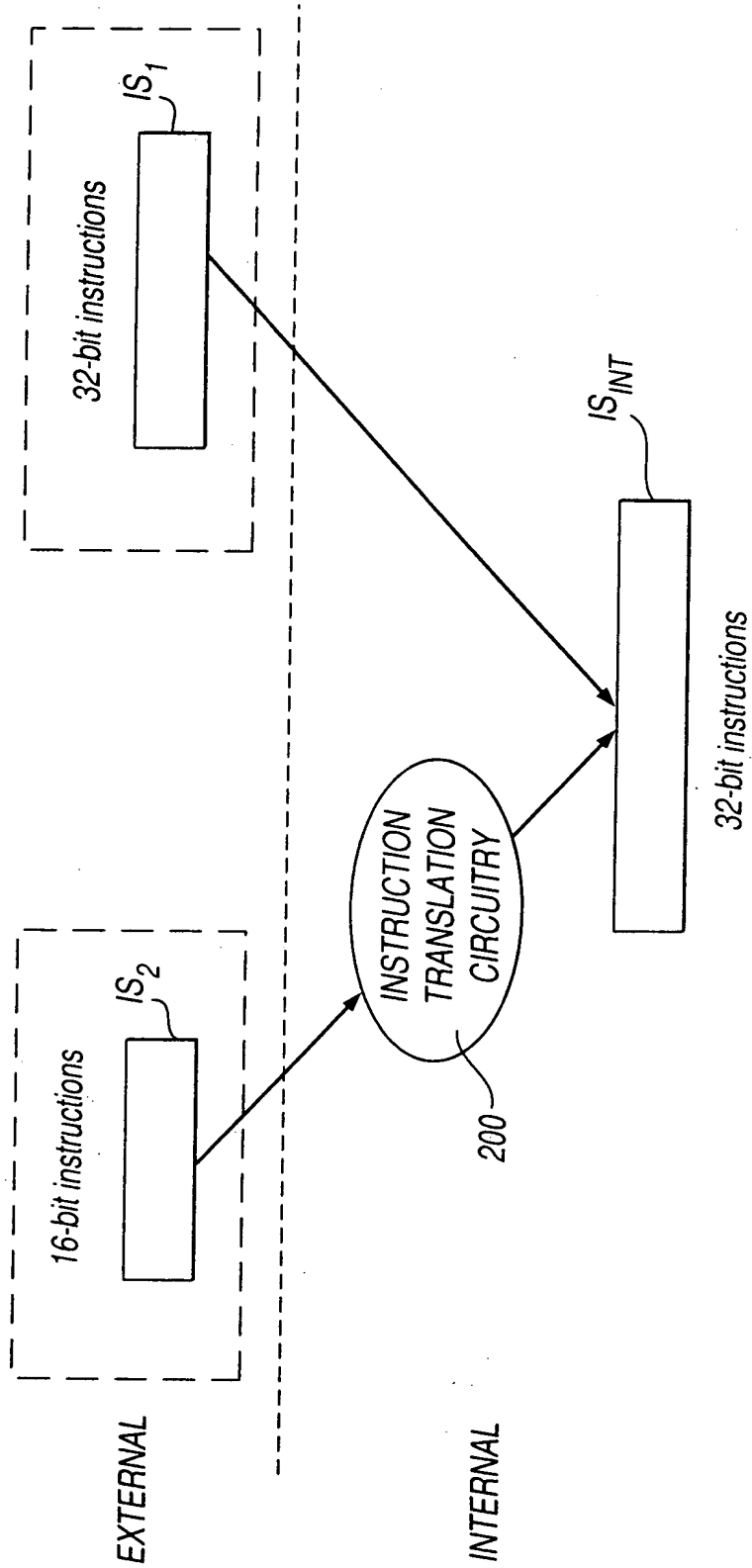
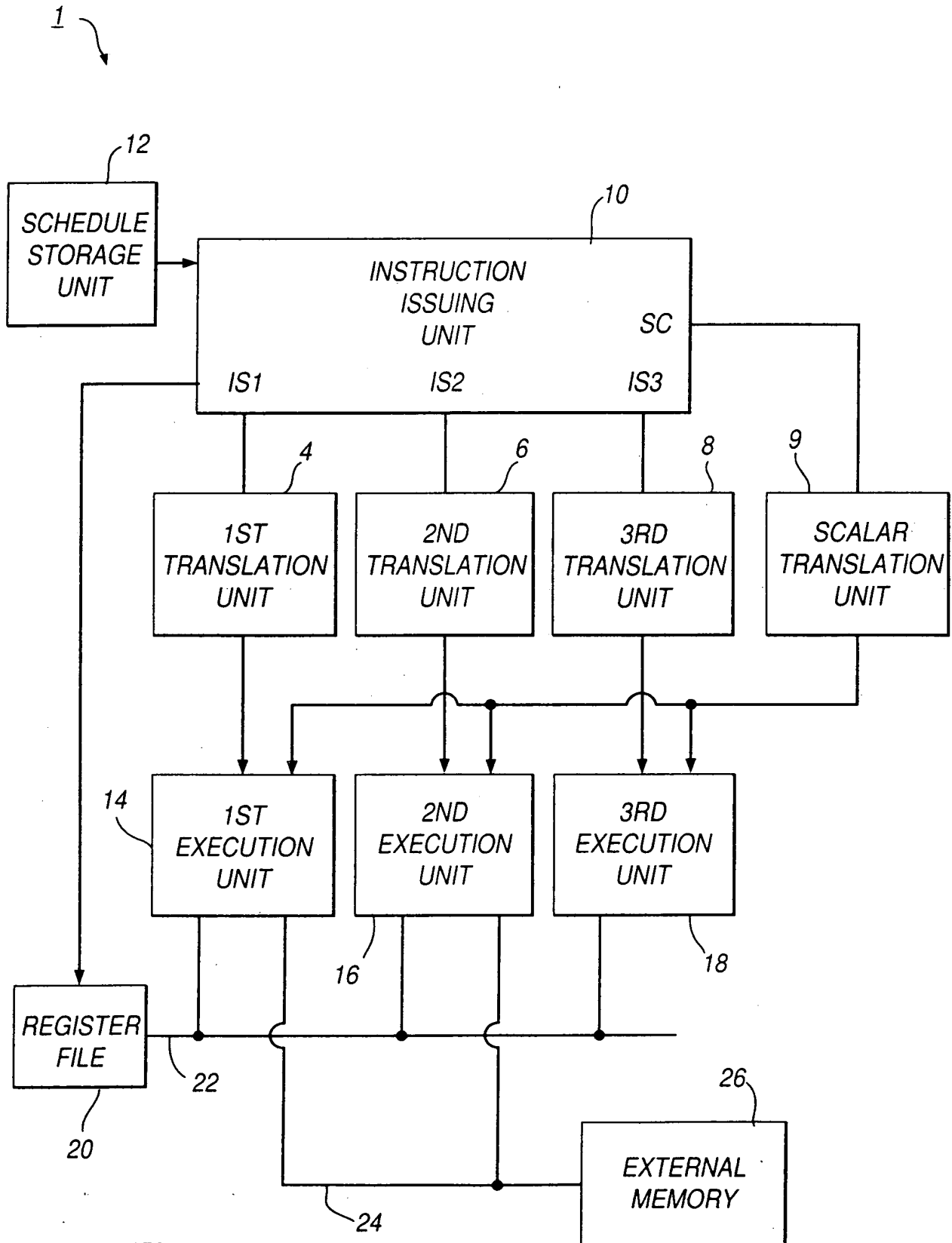


Fig.1

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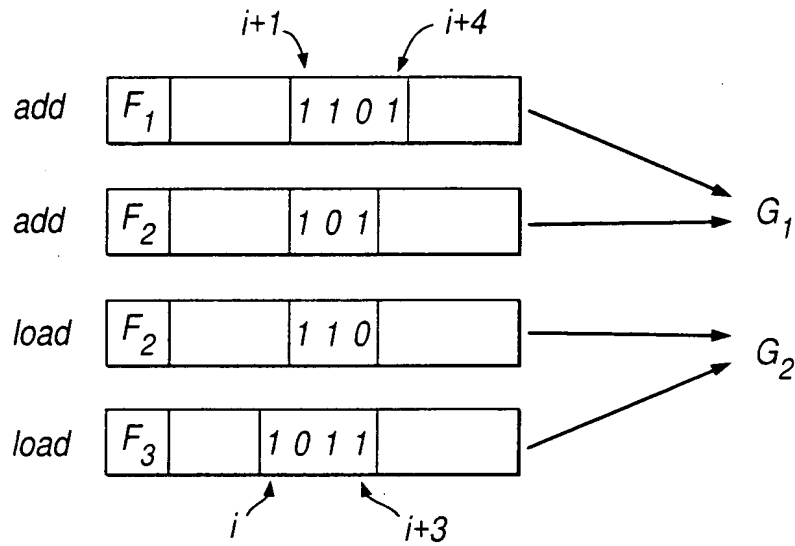


Fig.3(A)

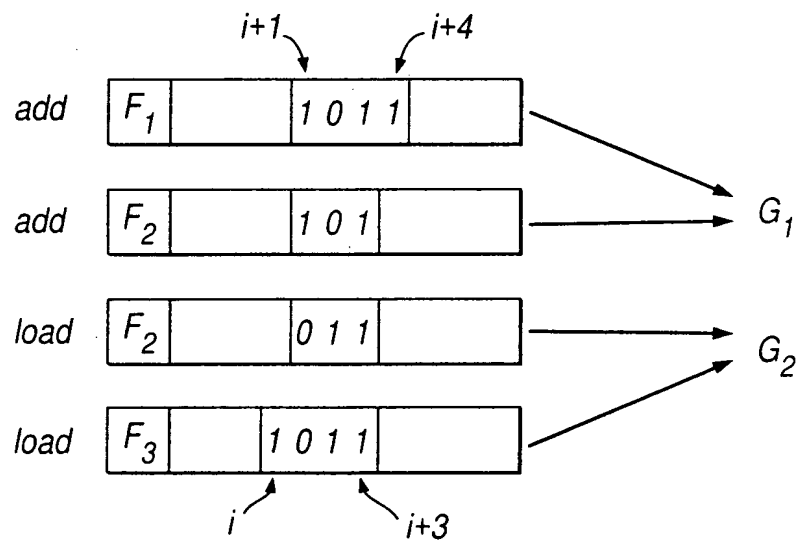


Fig.3(B)

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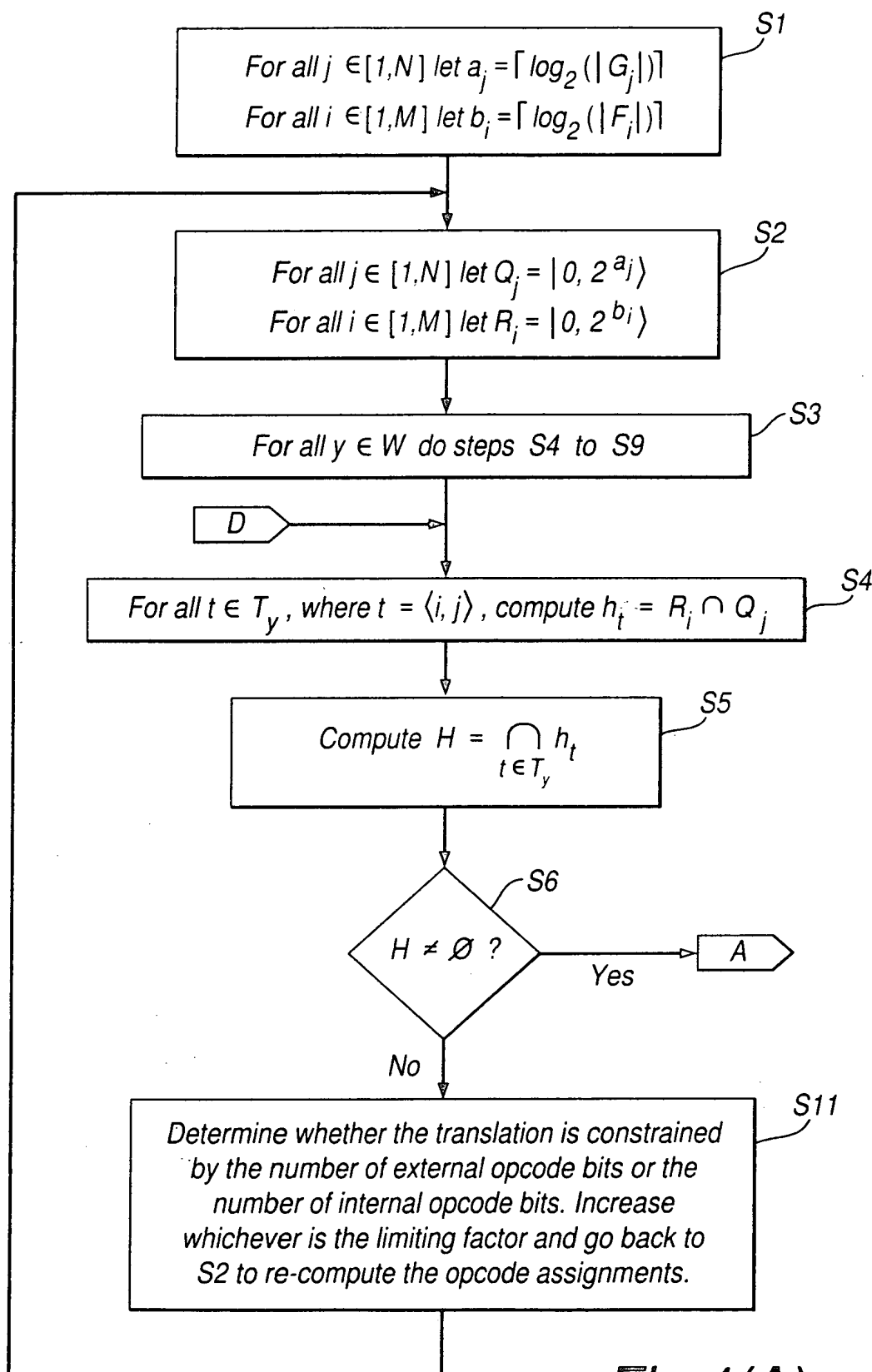


Fig. 4(A)

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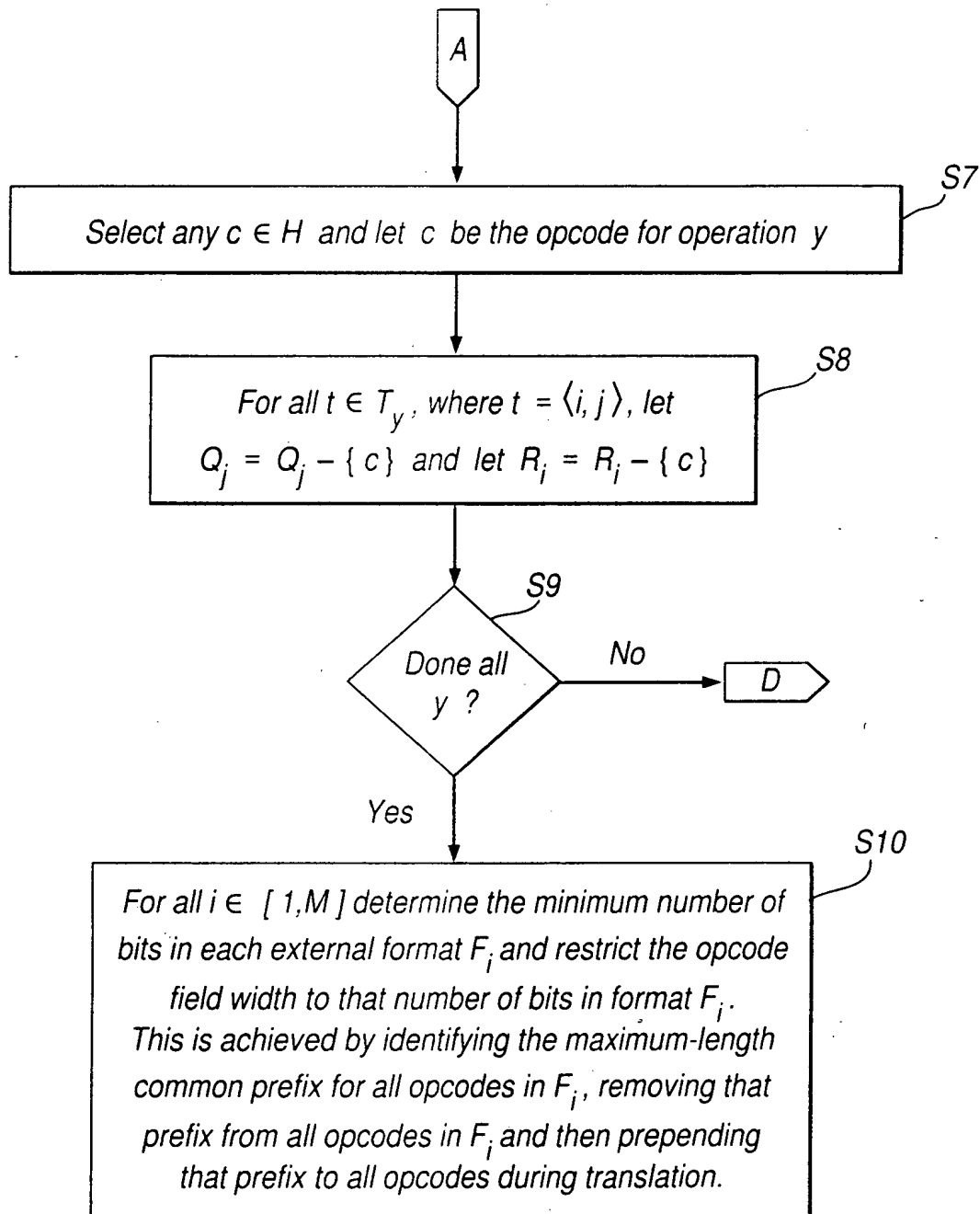
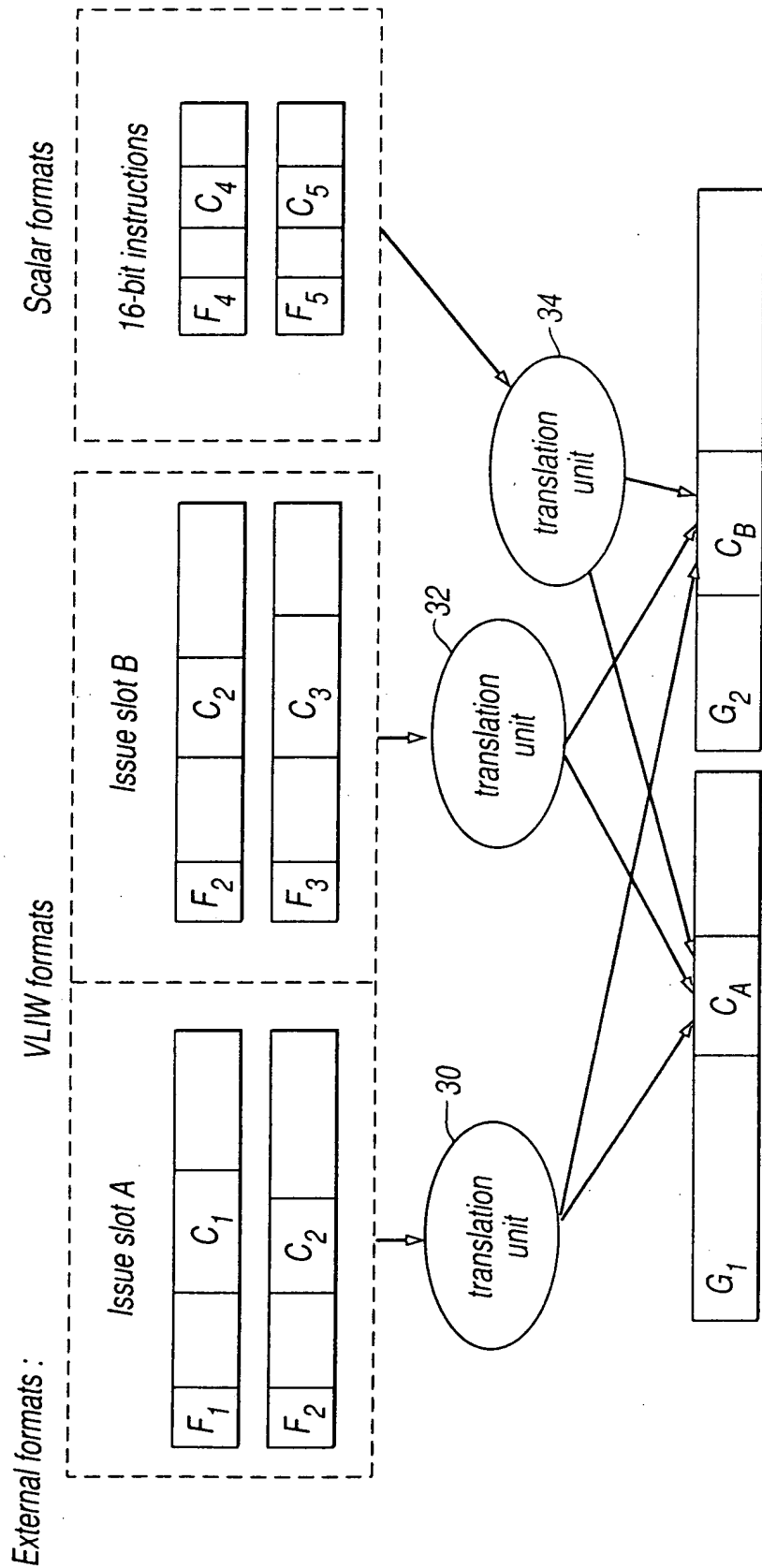


Fig.4(B)

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Internal formats

Fig.5

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Operation	Internal format	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		$F_4$	$F_5$	$F_1$	$F_2$	$F_2$	$F_3$
add	$G_1$						
	$G_2$						
or	$G_1$			*			
	$G_2$						
mul	$G_1$						
	$G_2$						
li	$G_1$						
	$G_2$						
sub	$G_1$						
	$G_2$						
rv	$G_2$						
div	$G_2$						

Fig.6

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		$F_4$	$F_5$	$F_1$	$F_2$	$F_2$	$F_3$
add	$G_1$	000	000	000	000		
	$G_2$	000	000			000	000
or	$G_1$						
	$G_2$						
mul	$G_1$						
	$G_2$						
li	$G_1$						
	$G_2$						
sub	$G_1$						
	$G_2$						
rv	$G_2$						
div	$G_2$						
$R_1 = \{ 001, 010, 011 \}$ $R_2 = \{ 001, 010, 011 \}$ $R_3 = \{ 001, 010, 011, 100, 101, 110, 111 \}$ $R_4 = \{ 001, 010, 011 \}$ $R_5 = \{ 001, 010, 011, 100, 101, 110, 111 \}$ $Q_1 = \{ 001, 010, 011, 100, 101, 110, 111 \}$ $Q_2 = \{ 001, 010, 011, 100, 101, 110, 111 \}$							

Fig.7(A)



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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		$F_4$	$F_5$	$F_1$	$F_2$	$F_2$	$F_3$
add	$G_1$	000	000	000	000		
	$G_2$	000	000			000	000
or	$G_1$	001	001	001	001		
	$G_2$	001	001			001	001
mul	$G_1$						
	$G_2$						
li	$G_1$						
	$G_2$						
sub	$G_1$						
	$G_2$						
rv	$G_2$						
div	$G_2$						
$R_1 = \{ 010, 011 \}$ $R_2 = \{ 010, 011 \}$ $R_3 = \{ 010, 011, 100, 101, 110, 111 \}$ $R_4 = \{ 010, 011 \}$ $R_5 = \{ 010, 011, 100, 101, 110, 111 \}$ $Q_1 = \{ 010, 011, 100, 101, 110, 111 \}$ $Q_2 = \{ 010, 011, 100, 101, 110, 111 \}$							

Fig.7(B)

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		$F_4$	$F_5$	$F_1$	$F_2$	$F_2$	$F_3$
add	$G_1$	000	000	000	000		
	$G_2$	000	000			000	000
or	$G_1$	001	001	001	001		
	$G_2$	001	001			001	001
mul	$G_1$	010	010	010	010		
	$G_2$	010	010			010	010
li	$G_1$						
	$G_2$						
sub	$G_1$						
	$G_2$						
rv	$G_2$						
div	$G_2$						
$R_1 = \{011\}$ $R_2 = \{011\}$ $R_3 = \{011, 100, 101, 110, 111\}$ $R_4 = \{011\}$ $R_5 = \{011, 100, 101, 110, 111\}$ $Q_1 = \{011, 100, 101, 110, 111\}$ $Q_2 = \{011, 100, 101, 110, 111\}$							

Fig.7(C)

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		$F_4$	$F_5$	$F_1$	$F_2$	$F_2$	$F_3$
add	$G_1$	000	000	000	000		
	$G_2$	000	000			000	000
or	$G_1$	001	001	001	001		
	$G_2$	001	001			001	001
mul	$G_1$	010	010	010	010		
	$G_2$	010	010			010	010
li	$G_1$	011			011		
	$G_2$	011				011	
sub	$G_1$						
	$G_2$						
rv	$G_2$						
div	$G_2$						
$R_1 = \{ 011 \}$ $R_2 = \{ \}$ $R_3 = \{ 011, 100, 101, 110, 111 \}$ $R_4 = \{ \}$ $R_5 = \{ 011, 100, 101, 110, 111 \}$ $Q_1 = \{ 100, 101, 110, 111 \}$ $Q_2 = \{ 100, 101, 110, 111 \}$							

Fig.7(D)

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		$F_4$	$F_5$	$F_1$	$F_2$	$F_2$	$F_3$
add	$G_1$	000	000	000	000		
	$G_2$	000	000			000	000
or	$G_1$	001	001	001	001		
	$G_2$	001	001			001	001
mul	$G_1$	010	010	010	010		
	$G_2$	010	010			010	010
li	$G_1$	011			011		
	$G_2$	011				011	
sub	$G_1$						
	$G_2$						
rv	$G_2$						
div	$G_2$						
$R_1 = \{ 011, 100, 101, 110, 111 \}$ $R_2 = \{ \}$ $R_3 = \{ 011, 100, 101, 110, 111 \}$ $R_4 = \{ \}$ $R_5 = \{ 011, 100, 101, 110, 111 \}$ $Q_1 = \{ 100, 101, 110, 111 \}$ $Q_2 = \{ 100, 101, 110, 111 \}$							

Fig.7(E)

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		$F_4$	$F_5$	$F_1$	$F_2$	$F_2$	$F_3$
add	$G_1$	000	000	000	000		
	$G_2$	000	000			000	000
or	$G_1$	001	001	001	001		
	$G_2$	001	001			001	001
mul	$G_1$	010	010	010	010		
	$G_2$	010	010			010	010
li	$G_1$	011			011		
	$G_2$	011				011	
sub	$G_1$		100	100			
	$G_2$		100				100
rv	$G_2$						
div	$G_2$						
$R_1 = \{ 011, 101, 110, 111 \}$ $R_2 = \{ \}$ $R_3 = \{ 011, 101, 110, 111 \}$ $R_4 = \{ \}$ $R_5 = \{ 011, 101, 110, 111 \}$ $Q_1 = \{ 101, 110, 111 \}$ $Q_2 = \{ 101, 110, 111 \}$							

Fig.7(F)

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		$F_4$	$F_5$	$F_1$	$F_2$	$F_2$	$F_3$
add	$G_1$	000	000	000	000		
	$G_2$	000	000			000	000
or	$G_1$	001	001	001	001		
	$G_2$	001	001			001	001
mul	$G_1$	010	010	010	010		
	$G_2$	010	010			010	010
li	$G_1$	011			011		
	$G_2$	011				011	
sub	$G_1$		100	100			
	$G_2$		100				100
rv	$G_2$						101
div	$G_2$						
$R_1 = \{ 011, 101, 110, 111 \}$ $R_2 = \{ \}$ $R_3 = \{ 011, 110, 111 \}$ $R_4 = \{ \}$ $R_5 = \{ 011, 101, 110, 111 \}$ $Q_1 = \{ 101, 110, 111 \}$ $Q_2 = \{ 110, 111 \}$							

Fig.7(G)

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		$F_4$	$F_5$	$F_1$	$F_2$	$F_2$	$F_3$
add	$G_1$	000	000	000	000		
	$G_2$	000	000			000	000
or	$G_1$	001	001	001	001		
	$G_2$	001	001			001	001
mul	$G_1$	010	010	010	010		
	$G_2$	010	010			010	010
li	$G_1$	011			011		
	$G_2$	011				011	
sub	$G_1$		100	100			
	$G_2$		100				100
rv	$G_2$						101
div	$G_2$		110				110
$R_1 = \{011, 101, 110, 111\}$ $R_2 = \{ \}$ $R_3 = \{011, 111\}$ $R_4 = \{ \}$ $R_5 = \{011, 101, 111\}$ $Q_1 = \{101, 110, 111\}$ $Q_2 = \{111\}$							

Fig.7(H)

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		$F_4$	$F_5$	$F_1$	$F_2$	$F_2$	$F_3$
add	$G_1$	00	000	000	00		
	$G_2$	00	000			00	000
or	$G_1$	01	001	001	01		
	$G_2$	01	001			01	001
mul	$G_1$	10	010	010	10		
	$G_2$	10	010			10	010
li	$G_1$	11			11		
	$G_2$	11				11	
sub	$G_1$		100	100			
	$G_2$		100				100
rv	$G_2$						101
div	$G_2$		110				110
$R_1 = \{ 011, 101, 110, 111 \}$ $R_2 = \{ \}$ $R_3 = \{ 011, 111 \}$ $R_4 = \{ \}$ $R_5 = \{ 011, 101, 111 \}$ $Q_1 = \{ 101, 110, 111 \}$ $Q_2 = \{ 111 \}$							

Fig.8